



Successful percutaneous treatment of a large coronary artery pseudoaneurysm with a covered stent graft

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Abstract

With exponential rise in percutaneous treatments of coronary disease in the last two decades, pseudoaneurysms of coronary vessels have been described, often as a consequence of previous coronary interventions. Nevertheless, pseudoaneurysms are still rarely encountered in clinical practice (0.3–6%) and pose a great challenge when it comes to management of this clinical entity. Our case not only highlights the rarity of pseudoaneurysms but also educates clinicians through these imaging series about the existence of successful percutaneous therapeutic approaches in such patient population, such as covered stent grafts as portrayed in this case. To our knowledge, this is the first case of a covered stent graft use in coronary pseudoaneurysm unrelated to previous coronary intervention.

Keywords Coronary pseudoaneurysm · Multidetector computed tomography · Angiography · Covered stent graft

Case description

A 44-year-old female presented with a transient anterior, sharp, non-radiating chest pain. Electrocardiogram revealed no abnormalities but troponin was elevated at 1.8 ng/ml. Echocardiogram showed a large saccular mass (3.3×3.2 cm) on the basal anterolateral wall of the left ventricle (Fig. 1a). The three dimensional volume-rendered computed tomography imaging confirmed a mass around the mid portion left circumflex (LCx) artery (Fig. 1b). Coronary angiogram revealed a large pseudoaneurysm causing a 90% compression on the mid LCx and a 99% occlusion of the 1st obtuse marginal branch (Fig. 1c). A communication between the pseudoaneurysm and LCx artery was also seen (Fig. 1d). After discussion with cardiothoracic surgery, coronary intervention was pursued and two covered stent grafts 4.0×19 mm and 4.0×16 mm were deployed into the mid LCx artery successfully covering the communication (Fig. 1e). Patient had an unremarkable course following the intervention. Follow-up echocardiogram at 6 months showed no evidence of pseudoaneurysm at the previously known location (Fig. 1f).

Discussion

A coronary artery pseudoaneurysm is a contained rupture of coronary vessel with dilation of the cavity that often exceeds the normal adjacent vessel diameter [1]. Typically they will have a narrow neck at the base of the communicating vessel and show evidence of blood flow into the cavity on coronary angiogram [1]. These patients often present with symptoms of chest pain, which could be atypical, as seen in our case. Although often related to previous coronary interventions, pseudoaneurysms are still rarely encountered in clinical practice and pose a great challenge in management. If left untreated, complications include spontaneous rupture, thromboembolism, and compression of nearby vessels or structures [1]. Surgical and percutaneous modalities remain a cornerstone of management. Covered stent grafts are used specifically for the treatment of pseudoaneurysms and have been successful in case reports [2–4]. To our knowledge, this is the first case of a covered stent graft used for pseudoaneurysm closure unrelated to previous percutaneous intervention.

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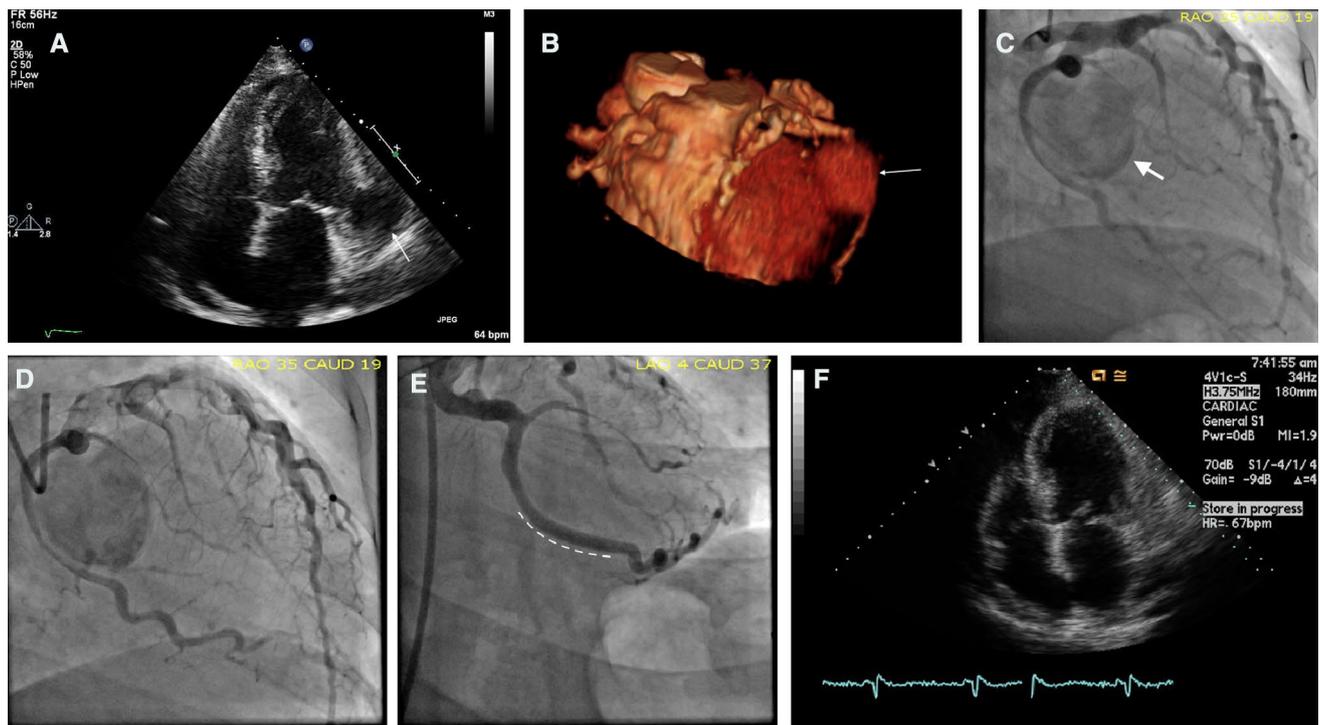


Fig. 1 **a** 2-dimensional echocardiogram (apical four chamber view)—An apical four-chamber view showing the pseudoaneurysm located on the basal anterolateral wall in the atrioventricular groove (white arrow). **b** Preoperative multidetector computed tomography with 3-dimensional volume rendering—Computed tomography with 3-dimensional volume-rendering showing the pseudoaneurysm involving the mid portion of LCx coronary artery (white arrow). **c** Left coronary angiogram demonstrating—left coronary angiogram view of the pseudoaneurysm (white arrow). **d** Left coronary angio-

gram—communication between the pseudoaneurysm and LCx artery (white arrow) with flow of contrast into the cavity. **e** Left coronary angiogram—final angiogram after deployment of two Jomed stents showing good perfusion in the LCx artery (dotted white line) and no evidence of communication between the pseudoaneurysm and the LCx artery. **f** 2-dimensional echocardiogram (apical four chamber view)—2-dimensional echocardiogram at 6 months follow-up demonstrating resolution of pseudoaneurysm

Compliance with ethical standards

Conflict of interest All authors declare that they have no conflict of interest.

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